Document ID Number: 2138
AR: Montrose Settlements Restoration Program Administrative Record
Title: Montronse Settlement Restoration Board Scientific Review Board for Fish Sampling Meeting #2

MONTROSE SRB FOR FISH SAMPLING: MEETING TWO

Present: John Cubit (NOAA), Pam Castens (Project Manager, Montrose Settlements Restoration Program), Jennifer Boyce (NOAA Restoration Center, Alternative Trustee, bird expert), Jim Allen (SCCWRP, fish communities and contamination), Patty Velez (DFG, Trustee), Jan Stull (retired LACSD, benthos specialist), Steve Schroeter (UCSB, Marine Science Inst., kelp forests, fisheries), Ken Nielsen (SeaVentures), Rich Ambrose (UCLA, Marine Ecologist, work w/NOAA on Montrose), Alyce Ujihara (CA DHS), Michelle Horeczko (Pacific States Marine Fisheries Commission - RecFin people), Joe Meistrell (LACSD), Ralph Appy (Environ. Div. LA Port Authority), Ann Bailey (EcoChem), Mark Gold (Heal the Bay), Ann Jones (IEc), Michael Donlan (IEc), Harry Ohlendorf (CH2MHill), Rich Gossett (CRG Labs), Fred Schauffler (EPA).

Introduction: John Cubit gave an overview of the role of the study in the greater context of the Montrose Settlements Restoration Program. The two primary purposes at this point are for public information and for the evaluation and feasibility planning of constructed reefs as potential restoration.

Jan Stull asked at what stage we will consider the engineering feasibility and characteristics of the reefs. John Cubit replied that after this study, the Trustees will do feasibility studies on regions that are likely to produce good rocky bottom fish with a constructed reef. Pam Castens added that they are kicking off a Restoration Plan and EIS/EIR, which will include analyses of impacts/feasibility/siting analyses of reefs.

For Committee Four on statistical issues, those items will be examined outside the whole SRB. Estimates of needed sample sizes can be done with existing data. Ambrose asked if we are looking to answer a hypothesis about whether there are significant differences in contaminant concentrations. Cubit replied that it's a tradeoff. Accuracy of the mean? how accurate do we need to be? how much confidence will we have that with a cutoff of say, 0.1 ppm, that's really the concentration that we're finding? "The DDT and PCB concentrations are between this and that with a certain level of confidence" is what we want to be able to say.

Committee One (Fish Sampling Issues):

Geographic resolution/sites to look at

Allen: See handout from meeting. Certain amount of information based on Pollock, et al. 1991. There is a data gap between Pt. Dume and farther north (the end of SMB) How far south do we need to go?

Schroeter: We need to look at the distribution of both good and bad fish. Cubit: Remember the two-point focus to sampling: reefs and public information. Some people won't accept white croaker substitutes. Need to go farther afield than where croakers are known to be contaminated (i.e., where are they OK?). This info is needed for public information purposes. Don't want to put reefs where croakers are "clean". Allen: If you're going to put in a replacement reef where white croaker are contaminated, by replacing with cleaner fish, need to make sure reef fish will

not be contaminated. Cubit: We have contaminant levels in rocky-bottom fish that show us that levels drop off really quickly as you get away from the Palos Verdes shelf.

Meistrell: We always find that rocky fish are lower than white croaker, so it would generally be good to put in rocky wherever there are contaminated white croaker.

Cubit: If we have two choices, Cabrillo and rocky point, and one has contaminated white croaker while the other doesn't, send them to the one that doesn't.

Paradise Cove at Pt. Dume: open or not (for fishing)?

Ambrose: North of Pt. Dume there's a whole new set of contaminants. Can we look at effects of non-Montrose contaminants?

Nielsen: 1987 survey Pollock has 20 sites in the area, much more cover.

Donlan: Shouldn't we focus on where people fish?

Gold: We don't know the financial constraints for this project. His feel for minimum is Ventura to Dana Point. Put most in SMB with lower density toward fringes. He and Steve say to focus on areas where people may fish.

Gossett: Want sites to be easy to get to; Cabrillo, really easy to get to (and easy/cheap to park.)

Appy: Piers are top priority.

Nielsen: LA River estuary, Pier J & G, around here, a lot of fishing from rocks.

Allen: Can use hard-bottom species data from party boats fishing in relatively shallow water to round out data.

Ujihara: Recfin explanation: they use fishing pressure estimates (they estimate how many people fish by day, night, month, mode by going out to likely sites); then they go out and count; then they determine fishing rate (fish per unit fisher effort). Length and weight data collected. Pier fishing, shore fishing. Santa Monica, Cabrillo, Redondo Beach, and Belmont are the highest fishing rate places in the area.

Horeczko: No data collections at night (due to safety concerns); they don't have a method in place to deal with it.

Cubit: Start with a limited sampling as a pilot, expand it from there.

Gold: We need to sample every pier between Belmont and Santa Monica (about 8 piers): general agreement.

Cubit: Major piers should be sampled. We might not be able to make a reef near some of the piers, so we need to figure out where we could make them - this will expand the number of

places to sample.

Appy: Next to Cabrillo, we'd get kelp everywhere if there were rocks, bad for fishing.

Nielsen: San Clemente, barrier reef, no kingfish/croaker at the pier now.

Ambrose: Need to keep the two goals separate when we're talking about these things. The questions we're asking are for the reef: what's the closest place to contaminated areas we can put in reefs? For public info purposes: what's the farthest they have to go. Proposes considering the sampling plans separately because the sampling would be different, then seeing where they overlap. Cubit agrees, and requests that people specify which purpose of sampling they're talking about. Allen: His write-up is focused on reef-related sampling.

Gossett: Over all these years, we have enough information to know there is a direct linear relationship between distance from the Palos Verdes shelf and contamination. We know it drops off, maybe not reinvent that?

Ujihara: Pier-by-pier health advisories have been a disaster. Better to simplify the warnings, could reasonably skip a few piers.

Public Information Discussion:

Schroeter: You already have a notion based on past data of where contaminated piers are and how heavily they are fished; one approach to Ambrose's point is to go to a point where you know contaminants are likely to be high.

Ambrose: Phase 1: Should first do the pier-type sampling for public info purposes (main focus). Phase 2: Based on findings in Phase 1, design the plan for reef-location sampling.

Ujihara: So, do we just sample white croaker at first?

Cubit: Focus on public informational sampling - go to areas we know people are catching fish and collect the data with knowledge that we are in Phase 1 and there will be a Phase 2. Go to where people are collecting rocky-bottom fish, too. Cover Ventura to Dana Point. Priority areas based on current fishing patterns. Phase 2: Use Phase 1 data and decide whether we need to get more data in between the places for which we have data.

Ambrose: Do we want to sample rocky reef fish up the Malibu coast? [decision: lower priority]

Cubit: Quite likely those would have no long-term benefit to Trustees, but they will decide.

Castens: If we are affecting the northern SMB people, Malibu area might be relevant.

Nielsen: Do you really think anyone would prefer white croaker to calico bass?

Cubit: Well, we're finding out if that's true.

Castens: We'll tell people "if you really want white croaker, these are the best places to go."

Cubit: questionnaire at Cabrillo pier "if you had to choose between white croaker and X, which would you choose" and did a picture test, lots of people preferred white croaker.

Allen: For Phase 1, may need to sample more of the pier-type fish than just croakers.

Appy: 36% of fish caught in an otter trawl are white croaker. If we put in a hard surface, and get lots of calico bass, the bass will likely be fished off quickly. Will we be able to repopulate for subsistence fishers?

Cubit: Sustainable fishing is a concern. Also looking at pelagics that people catch from piers, consider mackerel, barracuda, bonito. Montrose dealt with DDT and PCB, so those are a priority chemical concern. But if we're directing them to other fish, need to make sure there aren't other high contaminants.

Cubit: Add fish species that are widely fished, check a variety of contaminants. might be able to lessen the intensity of the sampling for the pelagics, since they circulate more. Fewer fish at each pier, or maybe fewer sites.

Velez: Data on metals in white croaker, surfperch, queen fish, sanddabs. (4-yr Coastal Fish Contamination Program with OEHHA - Brodberg knows.) Unfortunately, can't release the data.

Gossett: Orange County does mercury.

Schroeter: Need to know the coefficients of variability (spatial). Could statistics based on the data (CFCP) be released even if they can't share the data? That would help us plan the sampling plan (i.e., if we know that there is little spatial variability in mackerel, we wouldn't need to sample lots of them or at all the sites).

Gossett: Given the range of variation (natural), that could be huge compared to any lab variations.

Allen: We could use private/party boat data if they're at an appropriate depth (i.e., relatively shallow waters). Use that for some of the hard-bottom species data. Seasonal/Annual sampling: see discussion in notes.

Gold: Is there general working assumption that you try to get croaker at peak lipid levels?

Cubit: Two potential peaks in contaminant exposure: when people are catching/eating the most, and when the levels are highest.

Ujihara: DDT highest in summer white croaker, PCB in winter. (which study?)

Cubit: White croaker spawn in winter? general agreement.

Allen: Was sex considered?

Cubit: Migration issue?

Meistrell: LACSD samples once a year, at night, Sept/Oct.

Need Jeff Cross paper on variability in lipid concentrations.

Cubit: It's important that we don't go by the average angler; rather focus on consistent fishers. Do we want a year-round average, or a seasonal average, or a maximum dose?

Meistrell: Are we assuming you can't measure the relationship of DDTs, PCBs to lipids and it be a constant?

Cubit: Yes, it varies.

Schroeter: If you know the most contaminated fish you get occur during a time of year that nobody fishes, then that's not a worst case scenario.

Gossett: There aren't enough data to really know what the worst case scenario is.

Cubit: Go back to the Cross study. (Montrose claimed Trustees were trumpeting an exaggerated worst case scenario based on sampling times but we're not looking at acute studies.)

Ambrose: Maybe sample seasonally (maybe every two months) at a few places to look at variability and evaluate people's exposure, but do overall sampling less frequently.

Schroeter: Sample at places likely to be most contaminated on a regular basis.

Allen: If spawning is in fall, contaminant level will be high before then. Sample in the late summer when pressures are high and lipid levels in fish are high. Maybe sample regularly at Cabrillo.

Meistrell: We're approaching an overkill on precision, since there's no way the implemented plan will be close to that in accuracy.

Cubit: Will we be able to use these data to justify our actions? That's what's important. Sample fish when white croakers are likely to be most contaminated (late summer) and compare to data already available. If there is a huge seasonal basis, then we'll look at sampling more.

Castens: Are all the species of fish likely to be the most contaminated at the same time.?

Allen: Cold/temperate spawn in late fall, southern spawn spring to fall.

Castens: Do we just do sampling once, based on the white croaker spawning? Or do we sample multiple times? Is it harder to catch soft-bottom and hard-bottom at separate times? (Would there be wasted labor?)

Nielsen: We can get any of the fish at any time of year. Better to do it all at one time of year. But they are developing fish-specific methods, and methods that allow you to throw out fish that you don't want without killing them. Rockfish are the harder ones to catch.

Cubit: Does anybody know of any big seasonal variations in contaminations in rock fish?

Nielsen: We can catch fish anytime, it's just longer and more expensive in the winter. These are not migratory fish, it's just a question of whether they are biting.

Gold: We'd be making the decision based on the worst-case fish, white croaker, rather than worrying about rocky-bottom fish.

Allen: Due to greater abundance of migratory fishes in summer, may consume less "rock fish" in summer, more in winter when no migratory fish are present.

Cubit: Unless we hear otherwise, presume white croaker is the driving factor.

Schroeter: If you didn't know anything about variation in contaminants in other species through the year, it's going to be really expensive to do this. (If goal is to accurately determine time/contaminant relationship in multiple species.)

General idea to sample one pier frequently.

Cubit's big picture:

Phase One

- Purpose is for Public Information use, and for planning later reef-related sampling (if further sampling is needed)
- Ventura to Dana Point (Ventura specifically or Oxnard? Mugu?)
- Time of year to maximize white croaker contaminant levels (late summer)
- Locations to be based on Recfin, where people catch the most fish (i.e., catch per person).
- Species to include those most frequently caught, both rocky- and soft-bottom types.
    - Pelagics - less spatially intense (if supported by the data)
    - Should include one of the sharks?

CH2M HILL is now to begin writing the sampling plan. Anything we use should be included as appendix if not in text. Can be excerpts if using only small part of large report/publication, but complete copy should be available for administrative record.

AFTERNOON

Committee Two

How to get the fish: just make sure we're getting fish in the same range as fishers catch, don't need identical methods.

Independent Observers: One reason Cubit is reluctant to buy catch from a commercial fisher is that it is difficult to know exactly where they were fishing - might fudge the truth for all kinds of reasons. Nielsen: I hope you hire someone to do this who knows what he's doing. Bailey: Just need good documentation for the process. Nielsen: Chain of custody, etc. Bailey: Have someone go out at the beginning in order to verify how it goes, make sure they understand the process. Nielsen: Just need someone who knows the fish, knows where they are. Gold: Requiring independent observers on all trips would cause you to throw out all monitoring and assessment data. Add a penalty of perjury clause. General consensus: Clear description of field methods, chain of custody, GPS needed, but probably not independent observers on board the sampling vessel. Bailey: Have documented procedures, then make sure the samplers sign off on it. Appy: Bigger question is after it's collected what is happening with the data, are we using a GIS system? Cubit- yes, there will be a GIS component. Maybe not a full database, but might just be "this is Redondo, this is Hermosa" if we're not going out to sea much. Nielsen: Make a circle/square, and all the fish have to be from that area. Everyone has at least 10m accuracy, most have 2m accuracy on GPS. Meistrell: Bight98 plan has detailed procedure for defining sampling areas.

Schroeter: Clarification on methods of catching fish: the consensus is that you use whatever methods you need to get the appropriate ranges of sizes that match up with the fish people actually catch. Horeczko: This is covered in Recfin. Cubit: We'll just get all the fish data. Nielsen: We will get a lot of fish that are larger than the average pier-caught fish. Ujihara: Has distribution of white croaker size that's generally caught. Appy: LA Harbor data out in Feb, including length data. Conclusion: Define sampling areas as polygons and all fish must be collected within those areas.

Grouping Fish: Allen: Concern about grouping fish. OEHHA grouped surfperches. There's a lot of diversity in feeding types there; need to be careful about how you do that. (Nielsen's book is good source of info about the types of fish in the area.) Ran through list of surfperch that feed in different ways. Maybe group by feeding type.

[Note: We should get a matrix of all the fish we're considering, their seasonal variation (spatially and individually) and their feeding methods.]

Nielsen: Some groups of rockfish, very difficult to differentiate, can't get it to a specific type for the angler on the pier. Cubit: Calls these things groupings of similar species "complexes".

Cubit: For sampling plan, get together with Nielsen and Allen and decide what to lump, and then justify why they can be lumped.

Horeczko: Very few *Sebastes* (actual rockfish) are caught in the LA area.

Patty: DFG has fishing restrictions on rockfish.

Nielsen: There are some rockfish that would be attracted to shallow reefs.

Extra Fish: Cubit: We can collect them, keep them frozen, use them as back-up when they are needed to repair damaged data, or if we discover something else that we need to do analyses for.

Ohlendorf: Does this include other fish, non-targeted species? Cubit: Not if they're too small. Allen: In Newport Bay, came up with target species based on bait shop suggestions, but collected other species along the way because that's what they caught. Cubit: We wouldn't include fish that wouldn't be a part of our overall decision matrix. From Recfin, find out what to process for analysis. For the ones that we're not sure if it's worth it to count, maybe hold those species in the freezer, test a few, see if they're needed to test. Allen: From the CalCOFI data, species (coldwater) that disappeared in the 80s are reappearing since 1998. (It's been mainly warmer fish between the early 80s and late 90s.) Conclusion: We would not save the "by-catch" fish, just those that are targeted species unless there's some specific reason for saving fish of other species.

Nielsen: Does any other group want these fish?

Who else wants fish: Bailey: Does anyone archive fish? LACSD saves extracts, Allen saves frozen fish, got rid of extra Bight98 fish about a year ago. Bailey: NOAA has archived samples, but just sediment from S. Cal.

Can this sampling be dove-tailed, can it be part of EPA's efforts:

Schauffler: EPA will sample white croakers upcoast and downcoast of current closure area to verify if it is large enough. Brodberg gave sample locations, frequencies to Schauffler. Just issued a scope of work this week for CH2M Hill to develop sampling plan. (This sampling is related to the commercial fishing ban in the closure area.) Also getting fish from markets and restaurants to determine quality; primary interest is white croaker, looking at whether they surpass acceptable commercial levels. Also making sure that markets and restaurants have documentation of where they buy fish. Then they will check licenses, etc. if they find contaminated fish. In terms of extra catch, etc. they don't know if their locations would be the same as those for MSRP, and they don't know when they would be sampling; however, they are interested in working with the same fish collector. Interest limited to DDTs and PCBs. Couldn't really justify adding mercury to their list. Not even sure if the state is interested in mercury levels. Not sure how close they are to FDA/State limits as a commercial catch limit. Public information? It's about making sure people are aware of the fishing advisories, the commercial fishing ban, info on how and where you eat fish. Intent is to reinforce existing advisories, not to start conveying new methods that are not endorsed by the state. Potential problem: unofficial advice on where to fish from Trustee results, versus EPA official advice. Gold: still potential for what's not covered on the commercial side. You can get clean fish "this close" to Palos Verdes shelf for commercial fishing. How do you get back between the distributor and the actual fishing

expedition? (question for Schauffler) Schauffler: At the moment, doesn't intend to invest in clean catch certification program. Interested in working with people to see if they can get something set up. Conceivably willing to analyze white croaker from other areas to see how they compare. Thinks it's only been done once or so by commercial fishers. Cubit: Wants to get Dan Asgood? and other white croaker commercial fishers (near Ventura) back in business, but Montrose money is for subsistence/sport, not for commercial fishing. If there is a spill-over benefit to commercial, that would be great, but outside his jurisdiction. Gold: It's really a legal question: Is the focus restoring the resource to the anglers or to the people who eat fish? Cubit: The resource is catching fish to eat, not just eating them. Feels the ability to buy clean commercial fish is not among the resources lost. Schauffler: trying to enforce commercial fishing bans is their worry. Cubit: This was totally an NRD case. State AG filed commercial fishing injury claim (per se under CERCLA). Gold: Wants to have legal look at this outside the meeting. Doesn't think education is enough. Schauffler: The conversation we'd like to have is where concerns about croaker currently lie, what awareness is in marketplace, how they'd be more likely to buy (clean) white croaker. Try to put fishermen back in business when it's appropriate.

Also, model POTW monitoring program from SCCWRP. Gossett/Allen: Since 1994 they've conducted two large regional studies of Southern California. Mainly POTWs, fish contamination along mainland shelf of bight to Mexico border. Second survey extended into islands, bays, and had predator risk focus. Generally hoped to conduct every 4-5 years, but in process of developing model POTW program, looked at fish contamination programs; felt that contamination levels around outfalls needed to be looked at for health issues, should be dealt with in a more regional issue. Might be worthwhile for SCCWRP and POTWs to include seafood contamination as part of regional surveys. Next one due in 2003. Idea tossed about to collect fish from where people actually fish, Pt. Conception to Mexico, compare contaminant levels to appropriate fish guidance levels. Involve all the government people. Thinks these could dovetail. Might even help to broaden the number of species that can be covered. Has done this joint work before, good experience. But if survey doesn't take place until 2003, it's something to think about for longer term Trustee issues. Cubit: Could this be a pilot? Allen: This could contribute into how to plan the next survey. Really likes how SCCWRP does their collaborative surveys. For public info portion, our plan could get incorporated into their larger plan. Meistrell: In the past, they (LACSD) would shut down a lot of their monitoring in order to take part in sampling. They can't stop their stuff this time; expects Hyperion will be in the same boat, based on their new agreement. Cubit: To wrap up, just take this into account next time.

Meistrell: Our permits will be much more compatible with the goals of this project, if they get approved. They will still be on their own geographical region, looking at health effects/exposure (between LA and LACSD, Hyperion to Pt. Dume), but not fixated on piers. Gossett: Could it be used for commercial fishing issues? Cubit: So, this doesn't affect Phase 1 but may relate to Phase 2. If we start sampling this summer, that won't be modified by this dovetailing.

Appy: At White's point, lots of ethnic people go out and collect anything that moves, incl.uding limpits, gooseneck barnacles, etc. Allen: Urchins, mussels based on Recfin. Cubit: Injury is based on fishing advisories and bag limit on white croaker; that's all fish, no invertebrates, so he doesn't know if it can be covered, but it's not a priority, even if it is a continuing injury to fishing resources. Appy: So, scratch invertebrates. Cubit: Mussels are elevated, but not sure if it's high

relative to a consumption standpoint. We'll look at the mussel data to see if they look like they're around state trigger levels or federal screening levels. Ujihara will look at general consumption levels for bivalves.

Other contaminants to measure:

Gossett went through discharge data, '91 summary. DDT, PCBs, some chlordane, no dieldrin anymore. Ujihara: Use EPA screening values for chlordane, or OEHHA levels if they have them. Meistrell: LACSD only measures chlordane in outfall. From an analytical point of view, no extra cost if you're doing DDTs and PCBs as well. (Still database cost, and blanks, etc.) Bailey: ECD vs. MS could vary. Gossett: If you're doing 60 PCB congeners and a bunch of DDT congeners, 2 extra chlordanes (alpha, gamma) aren't a big deal. Cubit: Look at a cost-benefit, let Trustee Council make the decision. Allen: Chlordane is a near-shore problem, just look at it along the coast. What about other pesticides, chlorinated hydrocarbons? Not found in his studies. (Haven't looked at metals.) Appy: Do RFP before it gets to Trustees; have the different items costed out, and let them decide what to do.

Dioxins: Bailey: They're expensive. Gossett: Look at Allen & Cross (1994) Ujihara: Can of worms, total toxic equivalency was driven by co-planar PCBs, not dioxins. Very expensive. It'll be $1000/sample just for that. Couldn't even afford to do them for everywhere. Cubit: Phase 1, main concern not to direct people to an area that is high in some other unknown toxic chemical. From that perspective, given the PCB information incorporated in toxic equivalency. Ujihara: Doesn't think there's any dioxin testing around here. She will follow-up and talk to some of the other state people.

Ambrose: Is it possible to have an adaptive sampling program? Don't do in this first phase, only sample in areas you might send people to? Might be a place with low PCBs, where dioxins are high.

(Meistrell and Appy left)

Conclusion: Incorporate Ambrose's idea into plan. Analyses for dioxins will not be done in areas where DDTs/PCBs are expected to be a problem, but may be done in areas that fishers might be referred to. Ujihara to provide follow-up info.

Ambrose: Could you also apply this to mercury?

Other metals: Since we eliminated invertebrates, do we need to do trace metals? Se, As, Sn? Allen: Most of the As in fish is in organic form, and not that toxic. Se and As are at ppm level in sediment (0.1-1 ppm for Se and 1-10 ppm for As based on mid-80s NOAA data for Pacific Coast sediments), man's activities can't have a big effect. Gossett: Eliminate anything but mercury? Cubit: How do we document? Ujihara: Arsenic is found in sharks.

Action item: Document whether all the "metals" except mercury can be ignored.

Mercury: Accumulates, naturally available, generally non-anthropogenic, switching white croaker to white shark, you'll have a mercury problem. Gossett: The studies he's seen showed no

difference between outfall area and non-exposed area. (other studies hadn't controlled for size) 0.5 ppm in sand bass, same range as kelp bass. High (>1 ppm) in sharks, tuna. This is a level of concern. Gossett: In his opinion, enough information to include it. How should he back it up scientifically. His numbers are from someone's summary. Ujihara: These are definitely levels of concern, for small children and pregnant/nursing women.

Cubit: Wants more recent data on mercury levels. (Velez has mercury data from coastal contamination study - need to get Brodberg to release it.) Allen: Looked at mercury, as in Allen & Cross 1994.Cost issue: Analyses for chlordane, mercury (cost to sample all now, versus some later). OK for six months of storage? (EPA: 28 days, Bight-wide did 6 mos.).

Ambrose: Recommends mercury due to low cost, and high risk. Spatial pattern of mercury in reef fish (and species variation) could be useful for Phase 2.

Action item: Gossett to provide documentation, and mercury to be included in the analyses of fish.

Cubit: Maybe only do chlordane in areas where you expect to be higher.

Bailey: Look at data, see how chlordane compares to EPA screening level, and decide whether we want to do chlordane. (1st decision point)

Action item: Need to decide whether chlordanes should be included. Ohlendorf to get data from Velez and Ujihara and set up conference call, including Cubit, Bailey, Gossett, Jones, and other interested individuals. Gossett: Chlorinated pesticides: all extract at same time, all pass through same cleanup (not all at same efficiency), all have varying sensitivities on machine. Can scan a sample, get a rough idea of other chlorinated pesticides present in addition to DDTs and PCBs. Gold: Use that to decide whether to go back and test more. Gossett: Chlordane is really the only thing you're likely to see. Schroeter: What would raise a red flag?

Cubit: Can you see if you need to do chlordane from the initial screening run? Gossett says yes, Bailey hasn't seen it done before. Action item: Bailey/Gossett need to decide whether it takes an extra step to really focus on chlordane. Put this in RFP?

Bailey, Ambrose: If DDT is really high, you're not going to care about the chlordane level. Cubit: So if DDTs/PCBs are low, you could see chlordane on the screening run. (If so, add to sampling plan.)

Species selection: All based on Recfin. Ujihara: From public health standpoint, should really do sharks - they haven't been sampled much since 70s. Horeczko: People definitely target sharks from piers.

What tissues should we analyze:

Gossett: Whole fish with guts out.

Cubit: Standard way is fillets alone, almost every sampling along this coast has been done for

human consumption concerns. Brodberg would argue that it needs to be done that way for OEHHA since they don't advise anyone to eat whole gutted or skin on. Other view: People eat fish the way they like to eat fish, and highest concentrations are in fatty tissue. Gossett: In Puffer, compared raw to fried fish.

Gold: Are studies asking about whole fish? Ujihara: SF Bay survey asked people if they ate the guts, most didn't. Gold: Did they gut before cooking? Consensus: Not sure, think people do. Fish sauce: whole fish. Cubit: Butcher in Asian markets guts his fish. This is all anecdotal. Where to get more info? Seafood task force? Ujihara: Does her group evaluate this? Gold: Asking in restaurants tells you how people cook at home. (some discussion as to whether to punt restaurants as commercial.)

Cubit: Should we also take samples out of these same fish to get fillet comparisons.

Schroeter: Why should we do both?

Cubit: To compare to historic levels, to be compatible with OEHHA.

Ambrose: What are action levels based on? On fillets and only eating fillets.

Schauffler: Action level is based on a dose. Do we know what the conversion is?

Schroeter: We can try to create the conversion factor with this data.

Ohlendorf: We can total back if we take out a fillet and analyze both the fillet and the rest of the same fish.

Gold: Back to whole, gutted fish.

Ambrose: If you're going to analyze fish the way it's eaten, you will analyze different species in different ways.

Allen: Wants skin on and skin off fillets for each species.

Cubit: Species dependent what type of fillet to do. Do skin off and whole gutted as boundaries, as extremes.

Ujihara: Would bones dilute out the level of contaminants (i.e., they are included as part of the sample weight for whole fish, but don't have significant amounts of DDT or PCBs)?

Gossett: Logistics (i.e., grinding/homogenizing) for big fish is quite an issue.

Ambrose: For kelp bass, wouldn't most people eat fillets?

Cubit: Cut the head off for soup, eat the rest as fillets.

Nielsen: Is gutted "gills out"? (yes)

General agreement: These are appropriate boundaries.

Allen: Look at consumption database.

Gossett: Based on where DDT, PCB concentrate, you could be diluting the dose by doing whole, gutted fish.

Schroeter: We don't know exactly how people eat fish, or exactly where the DDT is, so, with imperfect knowledge: If gutted whole fish are the most extreme dose, this brackets reality. Gossett's point is that whole gutted fish might not be it. Should be part of sampling plan.

Cubit: We already know it's all over the field.

Ambrose: That's a whole other study to determine all this DDT information.

Gold: We have to be careful not to get too complicated. (i.e. 2 meals a week of fillets, but 1 meal a week of whole gutted, etc.)

Cubit, as Gossett said: You can actually get a lower level per gram of body weight if you do whole fish.

Cubit: Consensus is to do whole gutted fish (croaker only) and skin-off fillet. (For croaker, do two samples per fish [fillet and the rest of the whole gutted fish]; for other fish, do only skin-off fillet.) [[Need to confirm this is correct. Later discussion says that whole-body as well as fillet analyses would be done for other species at high, medium, and low-DDT sites during the first sampling.]]

Bailey: Determine average bone content to normalize the data?

Gossett: Base it on the total mass of DDT that gets into the food.

Cubit: This will just become a matter of how to properly report the data. Determine micrograms per fish as one of the ways of presenting the data. (Therefore, need to make sure the sampling plan specifies taking all the applicable weights during sample processing for analysis. However, not necessary to weigh the whole fish on the boat at the time of collection.) All samples to be done on the basis of individual fish (no compositing).

Donlan: Do dual-sampling for all samples?

Cubit: Agrees with Ambrose, no reason to do every fish this way. How do we sub-select? Schroeter proposed to look at relationships in high, medium, and low contaminant areas. Whole-fish collection from three sites, for each species.

Ambrose: Adaptive sampling strategy. Which of the alternatives to do for the rest after first set of sampling. Prefers all the fish at a few sites, to some of the fish at every site.

Schroeter: We kind of need to know what the concentrations are to pick.

Cubit: Base on the historical data. (Ambrose agrees) (Cubit's data bashing is about the absolute levels, not about what areas are contaminated.) (e.g. White Point, Redondo, and Dana Point)

Ambrose: If we don't find a consistent relationship at those three sites, we will have to reconvene and discuss what to do.

Sampling Procedures

Do we fillet on the boat? No; all dissections for fillets to be done in the lab. Initially, the fish from 3 sites (described above) will be dissected and analyzed as fillets and whole-body samples; other fish are kept without dissection until results of the first analyses are evaluated to determine which way other fish should be analyzed. Later, process them in the preferred way for analysis.

Ambrose: We don't know if this relationship exists, if it's linear, etc. which is why we need to do this.

Cubit: Q for lab guys: catch the fish, gut them on the boat, put them in foil and freeze them?

Bailey: Yes -better to gut them, so the guts don't explode. Keep them frozen.

Nielsen: Dry ice can be difficult to keep.

Gold: Concern about how people gut their fish? Standardization of techniques? Cross-contamination?

Nielsen: He'll do it consistently; the guy in the lab might not be as good. Contamination can be controlled by specifications. (Bailey confirms) Conclusion: Fish to be gutted on the boat; head stays on, and no weighing on the boat.

(Plan needs to take into account cross-contamination and site contamination.)

Gossett: Anglers in the field have a bunch of different ways of gutting fish.

Bailey: Bight-wide put in plastic bags? She prefers aluminum foil.

Allen: Always used to do tinfoil.

Gossett: Plastics only a concern for phthalates.

Bailey: And phthalates are a concern when analyzing for DDT/PCB.

Conclusion: Wrap in aluminum foil, then put in plastic bag to prevent sticking together. Include label on the outside of the aluminum foil. Check EPA guidance for details about this handling procedure.

Committee Three: QA/QC

Bailey: If labs can do PCBs, they can do DDT. Asking for opinions on the labs she listed.

Need to inform labs of adaptive approach and get prices for different stages.

Bailey's listed labs have all done PCBs by congener and various tissue work.

All of these labs have submitted in the * round robin, samples throughout the year.

Questions to ask: Is the equipment appropriate? Who is the project manager? How will they work with the consultants and Trustees? What is the price?

Do they have to be CA state-certified?

DFG Moss Landing Lab - doing work for OEHHA, etc.

Bailey: Tissue isn't certified in most states. (CONFIRM - what if we used this for a human health risk assessment?)

Bailey: Congeners: (Stull - which to use?) recommends not to base on Aroclors. In fish tissue, Aroclor patterns are questionable for quantification. (Gossett agrees). In looking at paper referred to by Brodberg, you can have different concentrations of congeners due to different bioaccumulations, makes it difficult to really predict the Aroclor concentration. As far as what congeners, GCMS (Gas Chromatograph Mass Spectrometry) using homologues to get total PCB. Included 100 or so congeners. You won't run standards on each single one, but there are ways to get good standardization between labs. Co-planar data, the most toxic, frequently very low, do high-resolution MS? Would they be detectable by low res MS? Gossett: Very low sensitivity, some co-elution on low-res. Problem with hi-res MS, expensive. Schauffler: Who's going to use these data? What sensitivity do they need? Brodberg/OEHHA apparently doesn't even look at congeners.

Cubit: We have no intention to do toxicological studies, risk analysis outside Trustees' domain. Need to pin it to what the state determines as risk levels, or already published risk levels, e.g. screening criteria. Velez: would OEHHA or DHS complain that there wasn't a human health risk analysis so they won't buy off on our work and support the recommendations?

Bailey: We come up with a total concentration of PCBs. According to Brodberg's paper, Aroclor algorithm overestimates total. Cubit: State levels are based on total PCB, not Aroclors or congeners.

Gossett: Use as many standards as you can to get the most accurate total PCB concentration.

Bailey: If you're not looking at TEQ's don't do high-resolution MS.

Ujihara: Isn't EPA doing a HHRA? Schauffler: Well, we already did one.

Cubit: All this raises the whole other issue of getting everyone to agree.

Schauffler: FDA value is muscle tissue number (5 ppm)

Sampling Plan out in late January, next meeting late February:

Thursday Feb. 28, start at 10:00.